

WHAT IS CLAIMED IS:

1. A tube for preparing fluid samples, the tube comprising:  
a hollow, cylindrical body having an open end and a closed end; and  
a filtering means for selectively retaining a desired substance from a sample  
5 fluid, the filtering means being disposed in the body proximate to the closed end of  
the tube.

2. A method for processing at least one biological substance in a vessel capable of retaining at least one substance, the method comprising:

introducing the at least one substance into the vessel;

inserting a filtering means separate from said introducing;

5 processing the at least one substance;

creating a permanent aperture in the vessel after said introducing; and

removing at least one substance through the aperture.

3. The method of claim 2, wherein the filtering means is a filter.

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4. The method of claim 2, wherein said filtering means further comprises a retaining substance.

5. The method of claim 2 wherein the vessel is a test tube.

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6. The method of claim 2 wherein the creating an aperture further comprises piercing the vessel.

7. The method of claim 2, the method further comprising the step of sealing the  
20 open end of the test tube to prevent unwanted fluid flow through the aperture.

8. A method for processing substances in a container, the container comprising at least one closed end, the method comprising:

introducing at least one desired substance into the container;

introducing at least one reagent into the container;

5 creating an aperture in the at least one closed end; and

retaining at least a part of the desired substance in the container after the aperture is created.

9. The method of claim 8, wherein the processing further comprises purification  
10 of DNA.

10. The method of claim 8, wherein the processing further comprises purification  
of RNA.

15 11. The method of claim 8, wherein the processing further comprises purification  
of proteins.

12. The method of claim 8, wherein the processing further comprises purification  
of bio-molecules.

20 13. The method of claim 8, wherein the at least one desired substance further  
comprises DNA.

25 14. The method of claim 8, wherein the at least one desired substance further  
comprises RNA.

15. The method of claim 8, wherein the at least one desired substance further  
comprises proteins.

30 16. The method of claim 8, wherein the at least one desired substance further  
comprises bio-molecules.

17. The method of claim 8, wherein the at least one desired substance further comprises oligonucleotides.

18. The method of claim 8, wherein the at least one desired substance further  
5 comprises organic molecules.

19. The method of claim 8, wherein the at least one reagent comprises a chaotropic substance.

10 20. The method of claim 8, wherein the at least one reagent comprises sodium perchlorate.

21. The method of claim 8, wherein the at least one reagent comprises a macromolecular crowding agent.

15 22. The method of claim 8, wherein the at least one reagent comprises a polar liquid.

23. The method of claim 8, wherein the at least one reagent comprises an alcohol.  
20 24. The method of claim 8, wherein the at least one reagent comprises a lysis buffer.

25 25. The method of claim 8, wherein the at least one reagent comprises a wash buffer.

26. The method of claim 8, wherein the creating an aperture further comprises piercing.

30 27. The method of claim 8, wherein the retaining further comprises adsorption.

28. The method of claim 8, wherein the retaining further comprises absorption.

29. The method of claim 8, wherein the retaining further comprises filtering.

30. The method of claim 8, wherein the retaining further comprises filtering chemically.

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31. The method of claim 30, wherein the filtering chemically further comprises precipitating.

32. The method of claim 30, wherein the filtering chemically further comprises  
10 digesting.

33. The method of claim 8, wherein the retaining further comprises filtering physically.

15 34. The method of claim 33, wherein the filtering physically further comprises filtering with a glass fiber filter.

35. The method of claim 33, wherein the filtering physically further comprises filtering with a bead.

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36. The method of claim 35, wherein the bead comprises a glass bead.

37. The method of claim 8, wherein the retaining further comprises filtering with a silica gel.

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38. The method of claim 8, further comprising removing excess fluid from the container.

30 39. The method of claim 38, wherein the removing excess fluid from the container further comprises removing excess fluid through the aperture created.

40. The method of claim 39, wherein the removing the excess fluid further comprises vacuuming.

41. The method of claim 8, further comprising:

adding a supernatant; and

precipitating the desired substance.

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42. The method of claim 41, further comprising pelleting the phage.

43. The method of claim 42, further comprising adding a sodium per-chlorate solution to the container.

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44. The method of claim 43, further comprising adding an ethanol solution to the container.

45. The method of claim 44, further comprising eluting the substances within the 15 container.

46. The method of claim 45, wherein the eluting further comprises applying positive pressure to at-least one end of the container.

20 47. The method of claim 8, wherein the container comprises a test tube.

48. A method for processing biological substances in a container, the container comprising at least one closed end and at least one open end, the method comprising:

introducing a retaining substance into the container;

introducing at least one desired substance into the container separate from said

5 introducing said retaining substance;

creating an aperture in the at least one closed end of the container after said introducing at least one desired substance; and

retaining at least part of the desired substance in the container after the aperture is -created.

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49. The method of claim 48, wherein the creating an aperture further comprises piercing.

50. The method of claim 48, wherein the retaining further comprises adsorption.

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51. The method of claim 48, wherein the retaining further comprises absorption.

52. The method of claim 48, wherein the retaining further comprises filtering.

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53. The method of claim 48, wherein the retaining substance further comprises a filter.

54. A method for extracting a desired substance from other substances within a container, the method comprising:

- pelletting the desired substance;
- piercing the container;
- 5 evacuating the container of at least one undesired substance;
- retaining the desired substance; and
- eluting the desired substance.

55. A system for processing substances in a container, the container comprising at least one closed end, the system comprising:

means for creating an aperture in the at least one closed end; and

means for retaining at least a part of the desired substance in the container  
5 after the aperture is created.

56. The system of claim 55, wherein the means for creating an aperture further comprises means for piercing.

10 57. The system of claim 55, wherein the means for retaining further comprises means for adsorption.

58. The system of claim 55, wherein the means for retaining further comprises means for absorption.

15 59. The system of claim 55, wherein the means for retaining further comprises means for filtering.

20 60. The system of claim 55, wherein the means for retaining further comprises means for filtering chemically.

61. The system of claim 60, wherein the means for filtering chemically further comprises means for precipitating.

25 62. The system of claim 60, wherein the means for filtering chemically further comprises means for digesting.

63. The system of claim 55, wherein the means for retaining further comprises means for filtering physically.

30 64. The system of claim 63, wherein the means for filtering physically further comprises means for filtering with a glass fiber filter.

65. The system of claim 63, wherein the means for filtering physically further comprises means for filtering with a bead.

5 66. The system of claim 65, wherein the bead comprises a glass bead.

67. The system of claim 55, wherein the means for retaining further comprises means for filtering with a silica gel.

10 68. The system of claim 55, further comprising means for removing excess fluid from the container.

69. The system of claim 68, wherein the means for removing excess fluid from the container further comprises means for removing excess fluid through an aperture created by the piercing.

15 70. The system of claim 69, wherein the means for removing the excess fluid further comprises means for vacuuming.

20 71. The system of claim 55, wherein the container comprises a test tube.

72. A vessel for processing substances, the vessel comprising:

a hollow body comprising at least one closed end;

the at least one closed end being pierceable to allow fluid to flow when

pierced; and

5 a retaining substance for selectively retaining a desired substance from the fluid.

73. The vessel of claim 72, wherein the retaining substance further comprises filter.

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74. The vessel of claim 72, wherein the retaining substance further comprises filter paper.

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75. The vessel of claim 72, wherein the retaining substance further comprises fibers.

76. The vessel of claim 72, wherein the retaining substance further comprises glass.

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77. The vessel of claim 72, wherein the retaining substance further comprises solid phase extraction media.

78. The vessel of claim 74, wherein the filter paper is formed into a cup.

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79. The vessel of claim 72, wherein the retaining substance further comprise beads.

80. The vessel of claim 72, wherein the retaining substance further comprises silica.

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81. The vessel of claim 72, wherein the retaining substance further comprises a gel.

82. The vessel of claim 72, wherein the retaining substance further comprises surface coating.

5 83. The vessel of claim 72, further comprising a gap interposed between the retaining substance and the closed end of the tube.

84. The vessel of claim 83, wherein the gap is maintained by supporting means for supporting the retaining substance.

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85. The vessel of claim 84, wherein the supporting means comprises one or more linear projections disposed radially from the center of the closed end of the tube.

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86. The vessel of claim 84, wherein the supporting means comprises one or more arcuate projections disposed circularly around the center of the closed end of the tube.

87. The vessel of claim 72, further comprising a recess disposed on the inside of the closed end of the tube.

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88. The vessel of claim 87, wherein the recess is located generally in the center of the closed end of the tube.

89. The vessel of claim 88, wherein the recess comprises one or more grooves, the grooves passing generally through the center of the closed end of the tube.

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90. A test tube for processing substances, the test tube comprising:

a first end;

a second end;

a hollow body;

5 the first end comprising an open end; and

the second end comprising:

a pierce-able closed end;

a raised interior surface; and

a recessed interior surface.

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91. The test tube of claim 90, wherein the raised interior surface comprises a raised cross-shaped surface.

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92. The test tube of claim 90, wherein the recessed interior surface comprises a raised cross-shaped surface.

93. The test tube of claim 90, wherein the raised interior surface comprises a raised circular-shaped surface.

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94. The test tube of claim 90, wherein the recessed interior surface comprises a recessed circular-shaped surface.

95. The test tube of claim 90, wherein the pierce-able closed end further comprises a weakened closed end.

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96. The test tube of claim 90, wherein the pierce-able closed end is more penetrable than the body.

97. A method of isolating a single type of molecule from a biological sample comprising an unisolated form of said type of molecule, the method comprising:

introducing said sample into a container having at least one closed end;

introducing a retaining substance separate from said introducing said

5 [retaining] sample;

separating said single type of molecule from the sample;

whereby at least two substances are separated;

creating an aperture in the at least one closed end of the container, after said

introducing said sample; and

10 removing at least one of said at least two substances through said aperture.